

ABSTRACT OF THE DISCLOSURE

A collection of nanoparticles of aluminum oxide have been produced by laser pyrolysis have a very narrow distribution of particle diameters. Preferably, the distribution of particle diameters effectively does not have a tail such that almost no particles have a diameter greater than about 4 times the average diameter. The pyrolysis preferably is performed by generating a molecular stream containing an aluminum precursor, an oxidizing agent and an infrared absorber. The pyrolysis can be performed with an infrared laser such as a CO₂ laser.